

CLAIMS

What is claimed is:

- 1 1) A reaction system comprising:
 - 2 a) a polyisocyanate component having a number averaged
 - 3 isocyanate functionality of at least 1.8 to 4.0;
 - 4 b) an organic isocyanate-reactive component comprising at least
 - 5 fifty (50) percent by weight, based on the total weight of the
 - 6 organic isocyanate-reactive component, of an organic polyol
 - 7 having at least one aliphatic tertiary amine group and a number
 - 8 averaged hydroxyl equivalent weight of greater than 70 to less
 - 9 than 450; and
 - 10 c) an isocyanate-reactive foaming agent selected from the group
 - 11 consisting of water, carboxylic acids, and mixtures thereof.
- 1 2) The reaction system according to claim 1 wherein the polyisocyanate
- 2 component is an aromatic organic polyisocyanate.
- 1 3) The reaction system according to claim 2 wherein the aromatic organic
- 2 polyisocyanate is a polymethylene polyphenylene polyisocyanate.

1 4) The reaction system according to claim 1 wherein the organic isocyanate-
2 reactive component further comprises a polyoxyethylene diol having a
3 number averaged molecular weight of about 190 to about 800.

1 5) The reaction system according to claim 4 wherein the organic isocyanate-
2 reactive component further comprises a propoxylated trimethylolpropane
3 having a number averaged molecular weight of about 700 to about 1400.

1 6) The reaction system according to claim 1 wherein the reaction system further
2 comprises less than fifteen (15) percent by weight of an internal mold release
3 agent, based on the total weight of the reaction system.

1 7) A reaction system for producing unreinforced molded articles comprising:
2 a) a polyisocyanate component comprising at least one organic
3 polyisocyanate having a free organically bound isocyanate
4 group concentration of between about 5% to about 50% by
5 weight of the total weight of the polyisocyanate component;
6 b) an organic isocyanate-reactive component comprising at least
7 fifty (50) percent by weight, based on the total weight of the
8 organic isocyanate-reactive component, of an organic polyol
9 having at least one aliphatic tertiary amine group; and
10 c) an isocyanate-reactive foaming agent comprising water and at
11 least one carboxylic acid, wherein the water constitutes at least

12 10% by weight, based on the total weight of the isocyanate-
13 reactive foaming agent.

1 8) The reaction system according to claim 7 wherein the polyisocyanate
2 component has a number averaged isocyanate functionality of at least 1.8 to
3 4.0.

1 9) The reaction system according to claim 7 wherein the polyisocyanate
2 component is an aromatic organic polyisocyanate.

1 10) The reaction system according to claim 9 wherein the aromatic organic
2 polyisocyanate is a polymethylene polyphenylene polyisocyanate.

1 11) The reaction system according to claim 7 wherein the organic polyol has a
2 number averaged hydroxyl equivalent weight of greater than 80 to less than
3 150 and greater than 1.7 ether linkages per molecule on a number averaged
4 basis.

1 12) The reaction system according to claim 11 wherein the organic isocyanate-
2 reactive component further comprises a polyoxyethylene diol with a number
3 averaged molecular weight of about 190 to about 800.

1 13) The reaction system according to claim 11 wherein the organic isocyanate-

2 reactive component further comprises a propoxylated trimethylolpropane
3 having a number averaged molecular weight of about 700 to about 1400.

1 14) The reaction system according to claim 7 wherein the carboxylic acid is
2 selected from the group consisting of oleic acid, ricinoleic acid, linoleic acid,
3 linolenic acid, adipic acid, fumaric acid, maleic acid, succinic acid, and
4 sebacic acid.

1 15) The reaction system according to claim 7, wherein the reaction system further
2 comprises less than fifteen (15) percent by weight of an internal mold release
3 agent, based on the total weight of the reaction system.

1 16) A process for preparing a molded foam comprising the steps of:
2 a) providing a reaction system comprising: (i) a polyisocyanate
3 component having a number averaged isocyanate functionality
4 of at least 1.8 to 4.0, (ii) an organic isocyanate-reactive
5 component comprising at least fifty (50) percent by weight,
6 based on the total weight of the organic isocyanate-reactive
7 component, of an organic polyol having at least one aliphatic
8 tertiary amine group and a number averaged hydroxyl
9 equivalent weight of greater than 70 to less than 450, and (iii) an
10 isocyanate-reactive foaming agent selected from the group
11 consisting of water, carboxylic acids, and mixtures thereof;

12 b) combining the reaction system to form a liquid reacting mixture;

13 c) injecting the liquid reacting mixture into a mold;

14 d) allowing the liquid reacting mixture to foam and cure in the mold

15 to form a molded foam; and

16 e) removing the molded foam from the mold.

1 17) The process according to claim 16 wherein the reaction system is separated
2 into an A component containing the polyisocyanate component and a B
3 component containing the isocyanate-reactive component and the
4 isocyanate-reactive foaming agent.

1 18) The process according to claim 17 wherein the A component and B
2 component are blended to achieve an Index of 0.8 to 1.3.

1 19) The process according to claim 18 wherein the mold contains a facing
2 material.

1 20) A molded foam produced according to the process of claim 16.